

Amended Claims:

1. (Cancelled)

2. (Currently amended) The ~~method~~ measurement device of ~~claim 6~~ claim 17, wherein the ~~step of directing the spread spectrum input signals into the~~ medium transmitting means comprises at least electrodes for transmitting spread spectrum current signals into the ~~medium~~ patient's body.

3. (Currently amended) The method of ~~claim 4~~ claim 17, wherein the step of directing input signals into the ~~medium~~ patient's body includes transmitting current signals into the ~~medium~~ patient's body and the step of detecting the output signals that correspond to the input current signals directed into the ~~medium~~ patient's body comprises measuring voltage signals.

4. (Currently amended) The ~~method~~ measurement device of ~~claim 6~~ claim 17, wherein the ~~step of directing the spread spectrum input signals into the~~ medium transmitting means comprises means for transmitting spread spectrum voltage signals into the ~~medium~~ patient's body.

5. (Currently amended) The ~~method~~ measurement device of claim 4, wherein the ~~steps of detecting response signals that correspond to the input voltage signals directed into the medium~~ detecting means comprises means for measuring current signals corresponding to the transmitted spread spectrum voltage signals.

6. (Cancelled)

7. (Currently amended) The ~~method~~ measurement device of ~~claim 6~~ claim 17, wherein the ~~step of~~ transmitting and detecting means transmit and detect spread spectrum electrical signals via a device electrode, the means for generating a measured parameter signal generates an impedance signal, and the means for analyzing the measured parameter ~~signals~~ signal to ~~determine~~ measure the desired

physiological condition comprises means for analyzing the impedance signal to determine a contact impedance of a the device electrode.

8. (Currently amended) The ~~method~~ measurement device of ~~claim 6~~ claim 17, wherein the measured parameter signals are impedance signals and the ~~step~~ of analyzing ~~means the measured parameter signals to determine the desired condition~~ comprises means for analyzing the impedance signal to determine a heart rate of a patient.

9. (Currently amended) The ~~method~~ measurement device of ~~claim 6~~ claim 17, wherein the measured parameter signals are impedance signals the ~~step of~~ analyzing ~~means the measured parameter signals to determine the desired condition~~ comprises means for analyzing the impedance signal to determine a respiration rate of a patient.

10. (Currently amended) The ~~method~~ measurement device of ~~claim 4~~ claim 17, wherein the transmitting means ~~frequency spectrum is an ultrasonic frequency spectrum and the step of directing the input signals into the medium~~ comprises an ultrasound transducer for transmitting ultrasound signals into the ~~medium at the randomly changed frequencies~~ patient's body.

11. (Currently amended) The ~~method~~ measurement device of claim 10, wherein the ~~steps of~~ analyzing ~~means the measured parameter signal to determine the desired condition~~ comprises means for analyzing echoes at each frequency of the ultrasound signal to determine the heart rate of a patient.

12-16. (Cancelled)

17. (Currently amended) A spread spectrum measurement device for measuring a desired physiological condition of a patient while avoiding degradation in an accuracy of the measured physiological conditions due to interference from nearby electronic equipment, the device comprising:

means for transmitting spread spectrum signals at different frequencies spread across a wide spectrum of frequencies into a medium patient's body;

means for detecting signals from the medium patient's body at the different frequencies corresponding to the transmitted spread spectrum signals;

means for generating a measured parameter signal from pairs of a cross-correlation of the transmitted and detected signals at common frequencies;

means for analyzing the measured parameter signal to measure the desired physiological condition[[:]]

~~means for generating a clock signal;~~

~~a random number generator; and~~

~~a divider which receives the clock signal and generated random numbers to generate a randomized clock signal, the randomized clock signal being conveyed to the transmitting means and to the detecting means to control the transmitting means and the detecting means to transmit and detect signals at random frequencies across a selected spectrum.~~

18. (Currently amended) A The measurement device of claim 28, wherein the processor is programmed to analyze the measured parameter signal to measure a selected physiological condition selected from a group spread spectrum measurement device at least partially comprised within a computer readable medium, comprising consisting of:

~~logic configured to direct a spread spectrum signal into a medium;~~

~~logic configured to detect a parameter that corresponds to the signal directed into the medium;~~

~~logic configured to generate a measured parameter signal from the detected parameter;~~

~~logic configured to analyze the measured parameter signal to determine a desired physiological condition including at least one of:~~

~~heart rate;~~

~~blood flow;~~

~~blood pressure;~~

~~respiration rate;~~

contact impedance;
tissue images; and
blood oximetry measurements; and

~~logic configured to generate a clock signal that is used to spread the signal directed into the medium across a desired frequency by randomizing the clock signal with a random number generator and a divider.~~

19. (Cancelled)

20. (Currently amended) A spread spectrum medical diagnostic measurement device comprising:

~~a medium interface~~ electrodes contacting a medical patient;

a signal transmitter which transmits a spread spectrum electrical input signal to the ~~medium interface~~ medical patient via at least some of the electrodes, the signal transmitter including a random signal generator configured to generate a random signal used in generating the spread spectrum electrical input signal;

a signal detector configured to detect a spread spectrum electrical ~~detected signal~~ using at the medium interface, the signal detector being in electrical communication with the medium interface least some of the electrodes and to despread the detected spread spectrum electrical signal to produce a measured parameter signal; and

a signal processor configured to analyze the ~~spread spectrum electrical detected signal detected by the signal detector~~ measured parameter signal to determine a physiological condition of the medical patient; and

~~a random signal generator configured to generate a clock signal that is used to randomly change frequencies, the electrical input signal directed to the medium randomly around a selected frequency spectrum by randomizing the clock signal with a random number generator and a divider.~~

21. (Previously Presented) The device of claim 28, wherein the transmitter transmits a spread spectrum ultrasound signal.

22. (Previously Presented) The device of claim 28, wherein the transmitter transmits a spread spectrum light signal.

23. (Cancelled)

24. (Currently amended) The ~~method~~ measurement device of ~~claim 6~~ claim 17 wherein the ~~generating the randomized clock signal~~ transmitting means includes:

means for generating a clock signal;

means for generating random numbers; and

means for dividing the clock signal by the generated random numbers to generate the a randomized clock signal that is used in generating the spread spectrum signal.

25-26. (Cancelled)

27. (Currently amended) The device of claim 20 wherein the physiological condition determined by the signal processor ~~determines~~ includes at least one of contact impedance, heart rate, and respiration rate ~~from the analyzed spread spectrum electrical detected signal.~~

28. (Currently amended) A spread spectrum physiological condition measurement device including:

~~a medium which contacts a patient;~~

a transmitter for conveying an input spread spectrum signal to ~~the medium a patient~~ at selectable frequencies;

a signal detector electrically connected to the ~~medium~~ patient to detect signals ~~at the selectable frequencies~~ corresponding to the input spread spectrum signal;

a random signal generator which supplies a signal to the transmitter that is used by the transmitter to generate the input spread spectrum signal and also to the signal detector that is used by the signal detector to cross-correlate the detected

signals corresponding to the input spread spectrum signal with the input spread spectrum signal to generate a measured parameter signal ~~which causes signals to be transmitted and received at each of a plurality of randomly selected frequencies within a preselected spectrum; and~~

a processor programmed to:

analyze the ~~detected signals~~ measured parameter signal
to measure a selected physiological condition ~~at the plurality of frequencies to generate a plurality of redundant measurements of the physiological condition at least one of which is isolated from interference on one or some of the plurality of frequencies.~~